

REMARKS

This is in response to the Official Action dated August 2, 2002. Such Official Action was directed to Claims 1, 2, 12, 13 and 18, Claims 3-11, 14-17 and 19-21 having been cancelled without prejudice as multiple-dependent claims or claims inappropriate for U.S. patents in the Application as filed. In this Amendment, Claims 1, 2, 12, 13 and 18 have been cancelled without prejudice and Claims 22-38 have been added. In the added claims, Claim 22 is essentially the same as prior Claim 1 with, however, the limitation of prior Claim 4 included therein except that Claim 4 is directed more specifically to a piezo-sensitive laminate. Otherwise new Claims 22-24 generally correspond to the subject matter of prior Claims 1-3 and new Claims 25-38 generally correspond to the subject matter of cancelled Claims 5-18. Included in such claims, Claims 32 and 33 correspond generally to the subject matter of cancelled Claims 12 and 13 and method Claim 38 corresponds, in general, to cancelled Claim 18. There are no claims corresponding to prior Claims 19-21 inasmuch as such claims do not conform, in general, to claims which are customary and recognized in this country. Claim 39 is an independent claim similar to Claim 4 rewritten in independent form.

By this Amendment, a Substitute Specification is provided which is in a format customary for U.S. patent applications and the claims have been amended in a manner so that they are also more nearly in formats customary for U.S. patent applications and, at the same time, generally restore the subject matter which was cancelled by the earlier Preliminary Amendment which was filed together with the Application.

The instant invention is for a system of braking a towed vehicle. The system includes a braking sensor on the towing vehicle, a control unit for communication with a braking actuator mechanism located on the towed vehicle so that the control unit determines the braking force to

be applied on the towed vehicle by sensing the braking force and signals therefor applied to the towing vehicle whereby the braking force applied to the towed vehicle is proportional to the force applied to the braking sensor in the towing vehicle as determined by the control unit. An important aspect of the invention is that the braking sensor on the towing vehicle comprises a substantially rigidly disposed piezo-sensitive laminate which is disposed on the brake pedal of the towing vehicle between the rubber pad which receives the foot of the operator and the steel horizontally extending part which receives the pad and connects to the braking cylinder in the towing vehicle. Thus the braking sensor directly senses the force applied to the braking pedal of the towing vehicle and this force, as accurately sensed, is utilized to apply a proportional amount of force to the brake pedal of the towed vehicle. The invention also includes an automatic sway detection mechanism to detect oscillations by the towed vehicle and apply the brakes on the towed vehicle if the oscillations are too great. In such case, the braking actuator mechanism actuates the towed vehicle's brakes for a predetermined duration of time and a predetermined amount of force independent of the towing vehicle.

Concerning paragraph 2 on page 2 of the Official Action, submitted herewith is a copy of a letter (facsimile) of the New Zealand attorneys representing the Applicant of the PCT Application, Jeffrey John Sharp, and therefore on behalf of the inventor, Clarence Michael Claerhout, to the IPEA-AU dated September 17, 2001 (received September 18, 2001). The submissions and amended claims dated September 18, 2001 (contained in the IPER) resulted in the findings in Form 409 (IPER) that Claims 1-18 were novel and included an inventive step. However, it appears that claims as amended under Article 34 of the PCT were not used as a basis for the Preliminary Amendment filed December 26, 2001 as intended, but rather the claims as published with the PCT Specification. The amended claims include a limitation in Claim 1 to

the braking sensor as including "a substantially static, pressure sensitive laminate." This limitation, it is submitted, is essentially the same as the "rigidly disposed pressure sensitive laminate" in Claim 22 of the instant Application. The language has been changed somewhat to ensure that it would not be considered "new matter."

Claims 1, 2 and 18 were rejected under 35 U.S.C. §102 as anticipated by U.S. Patent No. 5,709,435, to Wood. The Wood reference discloses a towed vehicle brake control system which slaves the towed vehicle to the towing vehicle. However, the brake position sensor disclosed in the Wood reference measures the position of the brake pedal. The braking force applied to the towed vehicle is thus dependent on the distance of the brake pedal moves which does not occur in the instant invention wherein the amount of force applied to the brake pedal is sensed, as such.

As indicated above, Claim 1 has been replaced, in effect, by Claim 22 incorporating, however, a rigidly disposed pressure sensitive laminate, whereby it is submitted that Claim 22 and claims dependent thereon, Claims 23-31, clearly avoid the Wood reference.

Claims 12 and 13 which are essentially the same as present Claims 32 and 33 were rejected under 35 U.S.C. §102 as anticipated by U.S. Patent No. 5,620,236, to McGrath et al. The McGrath et al reference discloses an electronic brake controller for actuating brakes of a towed vehicle in response to actuation of the brakes by an associated towing vehicle. The McGrath et al reference also discloses having a brake system wherein there is an automatic mode and manual mode. When the brake system is in automatic mode, the brakes of the towed vehicle respond to the actuation of the brakes of the towing vehicle. In order to change to the manual mode, a driver must continuously press the manual switch located on the towing vehicle. When in manual mode, that actuation of the brakes of the towed vehicle "is proportional to the displacement of the manual switch..." McGrath et al, column 4, lines 21-24. In the Official

Action it is stated that the current invention discloses the same system disclosed in McGrath et al and the McGrath et al reference is therefore anticipating. It is acknowledged that the McGrath et al reference discloses a provision for actuating only the brakes of a towed vehicle. However, the McGrath et al system requires the manual actuation of a switch by the driver located in the towing vehicle. McGrath et al do not teach that the brakes of the towed vehicle can operate independently of the towing vehicle. This is because the driver in the towing vehicle must continuously press the manual switch in order to disengage an automatic mode. The longer the driver presses the manual switch, the longer the brakes of the towed vehicle will be applied.

A problem associated with the McGrath et al reference is that the driver of the towing vehicle must be able to recognize sway in the towed vehicle and correct such sway with a manual actuation of the towed vehicle brakes. The present invention avoids this problem because it does not incorporate a manual switch which is located on the towing vehicle to actuate the towed vehicle's brakes. The instant invention also does not utilize brakes on the towed vehicle which are sporadically and inconsistently actuated by a driver. Accordingly, because the McGrath et al reference teaches that the actuation of the brakes of the towed vehicle is dependent on the towing vehicle and not independent of the towing vehicle, Claim 32 is not anticipated by McGrath. In addition, because the McGrath et al reference does not disclose brakes on the towed vehicle which are actuated only for a predetermined duration of time and amount of force independently of the brakes on the towing vehicle, the McGrath et al reference also does not anticipate Claim 33 of the instant Application.

Claims 12 and 13 (now Claims 32 and 33) were also rejected under 35 U.S.C. §102 as anticipated by U.S. Patent No. 4,254,998, to Marshall et al. The Marshall et al reference discloses a trailer sway-control and braking system. The sway sensor disclosed in the Marshall

et al reference senses when a towed vehicle is swaying and sends a signal to the towing vehicle. The signal from the sway sensor activates a brake control signal which warns the driver when to apply the brakes of the towing vehicle because the towed vehicle is swaying. But the system disclosed in the Marshall et al reference employs two manually operable, brake-actuating devices for "selectively applying the brakes of the trailer from the towing vehicle..." Marshall et al, column 2, lines 25-28. Accordingly, the Marshall et al reference does not disclose a brake actuator mechanism that operates independently of the towing vehicle associated with the towed vehicle.

In the Official Action it was also noted that U.S. Patent No. 5,115,162, to Leonard et al, may be relevant prior art. This reference discloses a pressure sensitive pad assembly for a brake pedal wherein the pad assembly has piezo-electric strips incorporated in the pad assembly. However, these piezo electric strips are deformable. When a driver steps on the brake pedal, these piezo electric strips are automatically deformed and create an electric signal proportional to the amount of force applied to the brake pedal of the towing vehicle. However, the incorporation of piezo-electric strips in an elastomeric material and the requirement for deformation of the pad assembly in the Leonard et al reference has a number of disadvantages in that movement and flex are required to measure the force applied to the brake pedal of the towing vehicle. Such flexing acts to fatigue the materials involved and which includes the elastomeric pad over time. In such case, the braking force sensed by the sensor will not consistently correspond accurately to the braking force applied to the towing vehicle. The present invention does not suffer from the same problems because, as clear from the drawings and otherwise, the pressure sensitive material in the present Application is substantially relatively static. In other words, it is disposed in a rigid manner between the horizontally extending portion of the brake pedal and the rubber pad as

such, whereby it is sensitive to the force received and will not flex in the sense comparable materials incorporated in an elastic material will be subject to flexion with that material.

It is noted that Applicant has not filed a certified copy of the New Zealand Application upon which he is claiming priority under 35 U.S.C. §119. For information, a certified copy of the New Zealand Application was filed with the International Bureau of WIPO on July 24, 2000. Another certified copy of the priority document has been ordered and it is expected it will be filed in the near future.

In reintroducing claims which were cancelled by a Preliminary Amendment when the instant Application was filed, an additional independent claim, to wit Claim 17, now Claim 37, has been included, as well as Claim 39 being added as an independent claim, and, accordingly, it appears that a further fee for the additional independent claims is required in the amount of \$84.00. Our check to cover same is submitted herewith. However, if this is in error, the Commissioner of Patents and Trademarks is authorized to debit or credit our Account No. 13-2000 as appropriate.

In addition, corrected drawings were required and, accordingly, copies of Figures 1, 2 and 3 are submitted herewith which have been marked in red to indicate corrections which will be made thereto when formal drawings are required. Approval by the Patent Examiner in charge of the instant Application of such drawing corrections is respectfully requested.

In summary, all the claims which were originally submitted with the Application have been cancelled and new claims have been substituted therefor, a Substitute Specification is submitted herewith with a marked-up copy of same, and copies of the original drawings marked in red are also submitted herewith. At the same time, we are submitting a check in the amount of \$549.00 to cover a Petition for a three month extension and the additional independent claims.

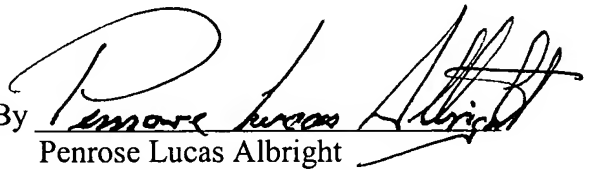
Still further, a copy of Applicant's New Zealand attorney's facsimile letter to IPEA-AU dated September 17, 2001, is enclosed.

Further consideration and reexamination of this Application, in its amended form, is requested in view of 35 U.S.C. §132 and regulations in implementation thereof. It is submitted the Application in its amended form is free from ambiguity and avoids the references of record. It is further submitted the Examiner should have no difficulty in finding that the differences between the subject matter sought to be patented in this Application and prior art and usage within the Examiner's expert knowledge are such that the subject matter as a whole would not have been obvious at the time the invention was made to persons having ordinary skill in the art to which the subject matter of this Application pertains.

In view of the foregoing, the allowance of claims as now presented is earnestly solicited.

Respectfully submitted,

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Filed: February 3, 2003